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ABSTRACT

Two studies investigated the effects of earning college credits for freshman year courses--as a result of performance on the College Level Examination Program's (CLEP) General Examinations--on later academic success. These are multiple choice tests of English composition, social science, natural science, humanities, and mathematics. Both studies compared students receiving credit as a result of CLEP performance to students not receiving CLEP credit. In Study 1, students from five Florida community colleges were matched according to Florida Twelfth Grade Test Aptitude scores. The graduation rate of CLEP students was much higher than that of the non-CLEP group, and the CLEP grade point average was higher. The non-CLEP group generally required more time to complete the 2-year program. Study 2 compared groups scoring in the same percentile rank on the CLEP; however, some were given credit while others were not, as a result of changes in the cutting score used as the criterion for granting credit. Although the non-credit group had higher community college grades, the percentage of graduates from each group was not significantly different. No significant differences were found in graduation or grades when those students went on to 4-year universities. The author concludes that awarding of CLEP credit does not harm the undergraduate performance of motivated, able students. Recommendations for continued use and study of the CLEP were made. (Author/GDC)

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A VALIDITY STUDY OF THE GENERAL EXAMINATIONS OF THE COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

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A VALIDITY STUDY OF THE GENERAL EXAMINATIONS OF THE COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

John Losak[1]

BACKGROUND

The College Entrance Examination Board's program of credit by examination, the College Level Examination Program (CLEP), became operational in 1965. The program has come to receive wide acceptance among colleges and universities in the United States, with over 1,800 institutions awarding credit, and approximately 294,000 CLEP General Examinations administered during academic year 1976-77 to both civilian and military personnel. The program is endorsed by the American Council on Education, Educational Testing Service, the Carnegie Commission on Higher Education, and various state-level organizations.

The General Examinations of the CLEP program consist of multiple-choice examinations in five academic areas: English Composition, Social Science, Natural Science, Humanities, and Mathematics. The basic idea behind the series of examinations is to award credit without having to take classroom work to those persons who can demonstrate that they already have extensive knowledge in a particular liberal arts area. The American Council on Education's recommendation (1965) is to provide what amounts to the freshman year of college enrollment for passing the General Examinations at the 25th percentile on college sophomore norms. College practices differ

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[1]I am indebted to the members of the CLEP Task Force for their significant contributions to this study. R. Arreola, W. Bell, E. Caldwell, E. Cottrell, C. Lynch, G. Raines, J. Stuckman, G. E. Tully, J. Webb, R. Whitehead.

on this matter,[2] but many institutions do provide the opportunity for students to bypass their freshman year, thereby accelerating their educational progress. According to the Grandy and Shea report, slightly more than half of the colleges and universities using CLEP award credit, using as a standard the 1963 national college sophomore norms, as suggested by the American Council on Education.

In the State of Florida, a requirement that public colleges and universities provide an opportunity for students to take the CLEP examinations for credit has been written into statute. The statute, however, does not specify a cut-off score on the General Examinations at which credit should be awarded. Initially, the practices varied considerably among Florida public colleges and universities, ranging from acceptance as low as the 25th percentile and as high as the 75th percentile on college sophomore norms. Inevitably, some transfer students who were awarded credit at the original institutions were later denied credit by the receiving college or university. This problem led to a compromise decision by the Articulation Coordinating Committee (comprised of both community college and university representatives) to award credit throughout Florida public higher education at the 50th percentile as of September 1972. Part of the compromise was to establish the cut-off score at the 50th percentile for a period of three years, thus providing time to gather as much evidence as feasible upon which to base a decision for a more permanent policy. One component of the evidence was to be derived from the present research study conducted by the CLEP Research Task Force.

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[2] J. Grandy and W. Shea, The CLEP General Examinations in American Colleges and Universities (Princeton, N.J.: College Entrance Examination Board, 1976).

The impact of the legislation requiring CLEP in the State of Florida has been substantial. Commissioner of Education, Ralph D. Turlington, reports that: "In the State University System, 96,250 quarter credits were awarded on the basis of CLEP examinations in 1975-76. A total of 47,843 semester credits were awarded on this basis in the community colleges. These figures represent approximately 8.4 percent of the lower division credits earned in the State University System during the regular academic year and 1.5 percent of the university parallel credit in the community colleges in 1975-76."[3]

Although the CLEP program has experienced burgeoning growth, it has not been well received in all quarters. Many persons within the mainstream of higher education have criticized the program on several counts. Probably the criticisms which received most widespread popular publication appeared in an article authored by Carl A. Stecher in the March 1977 issue of Change magazine.[4] Stecher's criticisms focus on the tenuous norming procedures and the putative lack of relationship between the questions and the subject being tested through CLEP, and represent an attack on multiple-choice examinations in general. In the December 1973 issue of the Journal of Higher Education,[5] Edward Caldwell takes the program to task with regard to the large proportion of allegedly pre-college material present in the examinations, particularly in the area

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[3]R. Turlington, "Student Acceleration in Florida Public Education," Fourth Annual Report to the Florida Legislature and the State Board of Education, February 1977.

[4]C. Stecher, "CLEP and the Great Credit Giveaway," Change, (March 1977): 36-41.

[5]E. Caldwell, "Analysis of an Innovation (CLEP)," The Journal of Higher Education, 44, (1973): 698-702.

of Mathematics. Teachers of English, and the professional groups with which they associate, have also been critical of the English examination as it is currently constructed.

Partly as a reaction to these criticisms, and partly also in an attempt to update the norms for the General Examinations, the American Council on Education appointed a committee to deliberate the issues, establish new norms, and make recommendations. The committee's efforts did not result in the establishment of new norms although considerable effort was expended in this direction. However, the committee did provide a series of recommendations which were adopted by the American Council on Education in June of 1976.

The major consideration with regard to these changes and recommendations with respect to the present study is that the examinations will no longer be identical with the examinations which were studied. There was, of course, an attempt by the College Board to equate the revised 90-minute variation to the 60-minute variation.

RESEARCH DESIGNS

The Task Force deliberated at some length on the issue of what criteria would be used to answer the research question: Are students who elect to write the examinations and receive credit via CLEP placed at an academic disadvantage in their later academic careers? The dependent variables of graduation rate, grade point average, and rate of progress through college were eventually chosen, both because they are important measures of academic success and reasonably obtainable from institutional records. Graduates were determined by including only those students to whom each college officially awarded a degree. Grade point average was obtained from official transcripts and does not include CLEP credit.

Rate of progress in the community college was calculated on the basis of months elapsed between enrollment and graduation, assuming four months for each major term (Fall and Winter), and two months for each short term (Spring and Summer). For example, if a student enrolled during the Fall Term, 1972 and graduated at the end of the Winter Term, 1974, he was assigned to 20 months (Fall, Winter, Spring, Summer, Fall and Winter) from enrollment to graduation, using this definition. In the State University System, rate of progress was calculated by counting the number of terms elapsed between initial enrollment and university graduation, multiplied by three. Three was chosen to represent the number of months per term in the State University System.

Initially, there were five community colleges selected for Design I based on size and geographic location. For Design I, it was anticipated that each community college would be able to identify 50 students for the CLEP Group and 50 students for the Non-CLEP Group, for a total of 250 students. (As it developed, one community college had only 16 students, and another had 51, for a total of 217 in each group of Design I.) For Design II, 191 students were identified for the Credit Group, and 159 students for the Non-Credit Group.

Each of the five participating community colleges in Design I was to follow the procedures established by the Task Force. All students were to be first-time-in-college, 18 to 20 year-olds, matched on Florida Twelfth Grade Test Aptitude score,[6] with 50 students in the CLEP

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[6]The Florida Statewide Twelfth Grade Testing Program was administered each October for nearly 40 years, terminating in 1976. It consisted of a battery of achievement tests in Mathematics, Natural Science, English, Social Science, and Aptitude test, and a Total score derived by adding the percentile scores from each of the five tests. Approximately 90 to 92% of the high school seniors in Florida wrote the exams in 1971 and 1972.

Group and 50 students in the Non-CLEP Group. As detailed in the Procedures section these guidelines were not always consistently adhered to by the participating community colleges.*

PROCEDURES FOR DESIGN I

The primary purpose of Design I was to compare the academic progress of two groups of students with simila Aptitude scores on the Florida Twelfth Grade Test: one group which received college credit through the College Level Examination Program (CLEP Group) and another group which did not earn credit through use of the CLEP examinations (Non-CLEP Group). Five community colleges contributed data for Design I of the study. The number of students in the CLEP and Non-CLEP Groups from each college is presented in Table 1.

Table 1

Number of Students in Sample by College

School	CLEP Group	Non-CLEP Group	Total
Daytona Beach Community College	16	16	32
Florida Junior College	51	51	102
Miami-Dade Community College	50	50	100
St. Petersburg Junior College	50	50	100
Valencia Community College	50	50	100
Total	217	217	434

Students were selected for the CLEP Group on the basis of having taken and received credit for the College Level Examination Program tests during the academic year 1972-73, with the further requirement

*These and other details are available in the more complete account of this project: copies can be obtained by writing to Mr. Shelly Boone, Deputy Commissioner, State of Florida, Department of Education, Tallahassee, Florida.

that they had previously taken the Florida Twelfth Grade Test (administered at that time to nearly all Florida high school seniors). In general, the students selected for the CLEP Group were first-time-in-college freshmen who were born during the years 1953-55. To be included in the CLEP Group, a minimal score at the 50th percentile on college sophomore norms was required.[7]

Each community college was to follow the procedures section of the research design developed by the Task Force as closely as possible, and to obtain 50 students for the CLEP Group. However, Daytona Beach Community College had only 16 students who met the criteria for inclusion, partly because the CLEP program was new to the college and partly because the college has a relatively small enrollment.

After defining the CLEP population, procedures were initiated to obtain a group of like students who did not earn CLEP credit. The Non-CLEP Group was selected by matching students in the CLEP Group with students of similar age and sex at the same college who earned comparable scores on the Aptitude section of the Florida Twelfth Grade Test, but who did not earn credit through the CLEP examinations.[8]

While it was assumed that matching the two groups on the basis of Florida Twelfth Grade Test Aptitude scores would assure equality on other Florida Twelfth Grade Test scores, such equality did not in fact occur. The CLEP Group had significantly higher Florida Twelfth Grade Test scores in English, Social Science, Natural Science, and Total score.

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[7]The actual selection of students was accomplished using scaled scores; the narrative refers to percentiles for purposes of clarity.

[8]All that is known is that these students did not present scores to the Registrar and did not receive credit. It is assumed, however, that virtually all simply did not write the exam.

Both groups had Total scores which placed them in the top 20 percent of community college students who write the Florida Twelfth Grade Test. Table 2 summarizes these test score distributions and provides mean age.[9]

Table 2

Test Scores and Age for CLEP and Non-CLEP Groups

Variable	CLEP Group (N=217) N	M	Standard Deviation	Non-CLEP Group (N=217) N	M	Standard Deviation
Age*	216	18.50	2.01	217	18.29	0.90
FTGT* Aptitude	216	84.85	11.20	216	84.27	11.39
FTGT English	216	82.35	14.67	216	78.40	15.58
FTGT Social Science	213	84.06	13.52	214	78.94	15.48
FTGT Natural Science	212	82.91	13.22	214	76.65	18.37
FTGT Mathematics	215	82.20	13.84	216	80.53	15.44
FTGT Total	213	415.18	49.75	214	400.15	55.64

*The means of these matching variables were not significantly different. $p < .05$ for comparisons between each set of FTGT means except Mathematics which yielded $p > .05$.

PROCEDURES FOR DESIGN II

Miami-Dade Community College. From July 1970 to September 1972, Miami-Dade Community College awarded credit for scores above the 25th percentile (college sophomore norms) on the CLEP General Examinations, as recommended by the American Council on Education. With the implementation of the Articulation Coordinating Committee Agreement regarding

[9]Throughout the tables, N refers to number and M to mean. Either a chi-square or t-test was used to determine statistical significance which was set at .05 or less. Therefore, when "$p < .05$" is encountered by the reader, it means that there are fewer than five chances in 100 that the difference would have occurred by chance alone. When "$p > .05$" is encountered, it means that the finding is judged not to be statistically significant since the probability of the difference occurring by chance is greater than five in 100.

the CLEP program in September 1972, the cut-off score for awarding credit was raised to the 50th percentile on college sophomore norms. This imposed change presented a unique research opportunity since many students continued to take the CLEP examinations and receive scores in the 25th to 49th percentile range but did not receive credit, whereas students with identical performance prior to September 1972 were awarded credit.

The research design called for the establishment of two groups of students. One group included those who took the CLEP tests prior to September 1972 and earned credit for scores between the 25th to 49th percentiles, with no more than one score between the 50th and 60th percentile. The second group was identified using the same definition of earned scores, but because of the State-mandated change in passing scores as of September 1972, the second group did not receive credit for their scores.

Table 3 presents a breakdown of the number of students attempting each General Examination, earning credit for each examination, and scoring within the selected score range.

Table 3

Students Scoring Within Defined Range

Within Each General Examination

General Examination	Attempted	Earned Credit	Scored Within the Selected Range*
English	353	240	69
Natural Science	331	244	86
Mathematics	320	275	135
Humanities	368	298	132
Social Science	353	268	78

*These numbers do not represent separate individuals.

Sixty students earned credit in just one General Exam area; 85 students earned credit in two General Exam areas; 87 students earned credit in three General Exam areas; 91 students earned credit in four General Exam areas;

94 students earned credit in all five of the General Examinations.

Three hundred and forty-four students had just one score within the selected range; 72 students had two scores within the selected range, and five students had three General Examination scores which were within the selected range. From those eligible for inclusion, a close match on the Florida Twelfth Grade Test Aptitude score was obtained with the Non-Credit Group, resulting in means between the two groups which are virtually identical.

After final sorting through incomplete records, etc., 191 students were selected for the Credit Group. The Non-Credit Group consists of the 159 students who wrote the CLEP examinations during the time period from September 1972 to June 1973 and who earned scores between the 25th and 49th percentiles, but received no credit because the cut-off score for awarding credit had been raised to the 50th percentile.

Table 4 summarizes test score distributions for Design II students and provides mean age for each group.

Table 4

Test Scores and Age for Credit and Non-Credit Groups

Variable	Credit Group (N=191) N	M	Standard Deviation	Non-Credit Group (N=159) N	M	Standard Deviation
Age	189	24.03	9.23	155	21.58	6.90
FTGT Aptitude*	112	62.19	20.50	84	62.88	18.20
FTGT English	112	59.58	20.27	84	60.14	19.20
FTGT Social Science	87	64.72	20.97	75	65.12	17.21
FTGT Natural Science	87	64.67	20.46	75	61.44	18.22
FTGT Mathematics	110	61.10	24.46	84	63.02	18.78
FTGT Total	87	326.29	74.26	75	317.27	66.59

*Matching variable

Note. Comparisons for all means were made using a t-test which yielded a $p > .05$ for all comparisons except age which was significant at $p < .05$.

The Credit Group had a mean age which was nearly three years older than the Non-Credit Group. No significant differences were found between the two groups on the basis of their mean scores on the Florida Twelfth Grade Test.

State University System. The previous procedures all describe the CLEP and Non-CLEP Groups at the originating community college. Another component of the research was assessment of academic performance beyond the community college. For practical reasons, only those students who enrolled in the State University System of Florida were followed in their upper division work. Names and social security numbers were provided to the State University System Registrars for all 434 students comprising the samples for Design I. The Registrars were asked to return transcripts for any students who had enrolled through the end of the third quarter of academic year 1976-77. The transcripts were used to determine the number of students from the CLEP and Non-CLEP Groups who enrolled in the State University System following initial enrollment at one of the participating community colleges. The transcripts also provided data for analysis of academic performance in the State University System.

The number of students from the CLEP and Non-CLEP Groups graduating with a Bachelor's degree was determined through a review of the transcripts. As previously described, the time taken to graduate was measured by counting the number of terms elapsed between initial enrollment in the State University System and graduation, and multiplying by three. Three was chosen to represent the number of months per term in the State University System.

Success was not defined by grade point average as was done for community college work, primarily because the grading system in some colleges at Florida International University does not yield a numerical grade point

average. Rather, success was defined as any course in which a student earned a grade of "C" or better; non-success was defined as any other grade. Specifically, grades A, B, C, P (Pass), S (Satisfactory), CR (Credit), or HC (Honors Credit) were considered as success, while grades of W (Withdrawal), and WP (Withdraw Passing), WF (Withdraw Failing), D, E, F, I (Incomplete) and NC (No Credit) were considered as non-success. (Audits were discarded.) The number of successes and non-successes were counted from the transcripts for students in both the CLEP and Non-CLEP Groups. The procedures followed for Design II were virtually identical to those followed for Design I students to assess their past community college work.

RESULTS FOR DESIGN I

Community College Performance. The findings reported for Design I represent the combined results from each of the five community colleges contributing data. The CLEP and Non-CLEP Groups are compared on selected variables in Table 5.

Table 5

Comparisons of CLEP and Non-CLEP Groups on Selected Variables

Variable	CLEP Group (N=217)			Non-CLEP Group (N=217)		
	N	M	Standard Deviation	N	M	Standard Deviation
Hours Attempted	217	47.43	17.65	216	44.58	23.86
Hours Earned	217	46.56	17.89	216	43.31	24.33
Hours CLEP	217	14.07	8.42	0	0.0	0.0
Total Hours Earned	217	61.62	18.59	217	44.03*	24.86
Grade Point Average	217	3.14	0.59	217	2.98	0.76

*A few credits were earned by students in other credit by examination programs.

Note. The grade point average of each group was compared using a t-test which yielded a $p < .05$.

The mean number of credit hours awarded to the CLEP Group of 14.07 hours is virtually equivalent to a full semester of college credit. Three years following their initial enrollment, the hours earned by the CLEP Group was higher than hours earned by the Non-CLEP Group (Table 5). The fact that the CLEP Group graduated 150 students, in contrast to 95 of the Non-CLEP Group, contributes heavily to this finding (Table 6). The total hours earned of 61.62 by the CLEP Group reflects the fact that virtually all of the hours of CLEP earned by those students were in fact used to achieve graduation. The grade point average of 3.14 for the CLEP Group was significantly higher than the grade point average of 2.98 for the Non-CLEP Group (Table 5).

Table 6 presents a breakdown of the degrees awarded to members of each group through May 1976.

Table 6

Degrees Earned at the Community College

by the End of Winter Term, 1976

Degree	CLEP Group (N=217)		Non-CLEP Group (N=217)	
	N	%	N	%
AA Degree	130	59.91	73	33.64
AS Degree	20	9.21	22	10.13
Other Degree	0	0.0	0	0.0
Planned Certificate	0	0.0	0	0.0
Total Graduated	150	69.12	95	43.77

Note. Comparison of graduates was made using chi-square which yielded a $p < .05$.

The CLEP Group had a graduation rate of 69.1% which was significantly higher than the graduation rate for the Non-CLEP Group of 43.7%. Virtually all students had an opportunity for a minimum of three years attendance from the time of their initial enrollment to May 1976, which is the time period covered by the community college phase of this study.

The third dependent variable under study was the length of time that graduates of each group attended a community college prior to receiving their Associate's degrees. It was found that the Non-CLEP graduates took 6.16 months (one full semester and one short term) longer to graduate than the members of the CLEP Group.

State University System Performance. For Design I students who began their education at five different community colleges, their State University System enrollment pattern is summarized in Table 7.

Table 7

Enrollment Within the State University System

by Design I Students

University	CLEP Group	Non-CLEP Group	Total
Florida A & M University	0	0	0
Florida Atlantic University	2	1	3
Florida International University	19	12	31
Florida State University	25	25	50
Florida Technological University	21	16	37
University of Florida	28	19	47
University of North Florida	16	14	30
University of South Florida	23	20	43
University of West Florida	1	1	2
Total	135	108	243

Note. Comparison of total number enrolled in the State University System was made using chi-square which yielded a $p < .05$.

The original selection of students to comprise the CLEP and Non-CLEP Groups yielded 217 students in each group. Of the 217 in the CLEP Group, 150 students received an Associate's degree. Table 7 reflects that 135 students from the CLEP Group enrolled in the State University System. It is important to note, however, that the 135 students who enrolled in the State University System includes both graduates and non-graduates from the

original CLEP Group (it is not necessary to hold an Associate's degree in order to enroll in the State University System). The same situation is true for the Non-CLEP Group. A chi-square analysis of enrollment in the State University System by Design I students revealed that a significantly higher proportion from the CLEP Group enrolled in the State University System than from the Non-CLEP Group.

Table 8 provides a summary of the progress of Design I students who graduated from the community college.

Table 8

Progression of Design I Community College Graduates

	Number of Students in Sample	Received Associate's Degree	Community College Graduates Who Enrolled in SUS	Community College Graduates Who Received Bachelor's Degrees in SUS
CLEP Group	217	150	110	65
Non-CLEP Group	217	95	76	32

Note. Each of the 3 comparisons was made against the original sample of 217 using chi-square which yielded a $p < .05$ for each.

Of the 217 CLEP Group students, 150 earned an Associate's degree; of the 150 community college graduates, 110 enrolled in the State University System; of these, there are 65 students who earned a Bachelor's degree by June 1977. When compared to the Non-CLEP Group, a statistically significant difference was found in favor of the CLEP Group with respect to the proportion who earned an Associate's degree, the proportion who entered the State University System, and the proportion who graduated from the State University System.

Table 9 is presented to reflect the fact that a number of Design I students enrolled in the State University System without having first been formally awarded a degree by a community college.

Table 9

Progression of Design I Students

(Community College Graduates and Non-Graduates)

	Students in Sample	Enrolled in SUS	Received Bachelor's Degrees in SUS
CLEP Group	217	135	70
Non-CLEP Group	217	108	42

Note. Each comparison (enrolled in SUS and graduated from SUS) was made against original sample of 217 using chi-square analysis which yielded a $p < .05$ for each.

Members of the CLEP Group (both community college graduates and non-graduates) enrolled in the State University System and received a Bachelor's degree at a significantly higher rate than members of the Non-CLEP Group.

Analysis of the time required to graduate after entering the State University System by Design I students revealed that CLEP students took no longer to graduate with a Bachelor's degree than was taken by the Non-CLEP Group.

The third variable used for comparison was academic success and non-success in State University System course work. Table 10 summarizes academic performance in the State University System for Design I students.

Table 10

Performance in State University System Courses

	University Graduates		University Non-Graduates	
	Successful Courses	Unsuccessful Courses	Successful Courses	Unsuccessful Courses
	M	M	M	M
CLEP Group	25.2	1.5	13.0	3.5
Non-CLEP Group	24.5	1.2	13.0	3.3

Note. Comparisons between all 4 means were made using a t-test which yielded a $p > .05$ for each.

The differences between the two groups do not show the CLEP Group to be

placed at any disadvantage in successfully completing their course work. Their slightly higher mean number of courses is, of course, related to the fact that a higher proportion of CLEP students graduate.

As another dependent variable, entrance by Design I students into post-baccalaureate education was also assessed. As of June 1977, nine members of the CLEP Group and eight members of the Non-CLEP Group had enrolled for post-baccalaureate work. This variable is extremely tenuous as a valid measure, both because the time may be too short, and more importantly, because many students seek post-baccalaureate work outside the State University System. Finally, an analysis of the graduates by college of graduation reveals a pattern similar to that experienced by the total State University System; the highest numbers graduated in Business, Education, and Arts and Science, with no discernible pattern of difference in selection of major between the CLEP and Non-CLEP Groups.

RESULTS FOR DESIGN II

Community College Performance. Comparisons were made between the Credit and Non-Credit Groups with regard to their academic performance at Miami-Dade Community College. Table 11 provides information related to grade point average, and earned hours of CLEP for each group.

Table 11

Comparisons of Credit and Non-Credit Groups on Selected Variables

Variable	Credit Group (N=191) N	M	Standard Deviation	Non-Credit Group (N=159) N	M	Standard Deviation
Hours Attempted	191	44.59	23.58	159	53.06	22.60
Hours Earned	191	41.12	21.23	159	51.02	23.62
Hours CLEP	191	13.38	6.74	0	0.0	0.0
Total Hours Earned	191	58.54	24.59	159	51.02	22.62
Grade Point Average	191	2.89	0.73	159	3.05	0.74

Note. Comparison of mean grade point averages was made using a t-test which yielded a $p < .05$.

At the end of the Winter Term 1975-76, the grade point average for the Credit Group was 2.89, while the Non-Credit Group had a grade point average of 3.05. This difference is significant, with the probability level $< .05$. Since the Non-Credit Group enrolled more than a year later than the Credit Group, the possibility existed that a general "grade inflation" at Miami-Dade may have raised the grade point average for the Non-Credit Group. Examination of grade distributions for the years 1972, 1973, 1974 reveal a decrease in the percentage of "D" or better grades each year precluding grade inflation as an important factor.

Table 12 presents a breakdown of the degrees awarded by Miami-Dade Community College to members of each group through May 1976.

Table 12

Degrees Earned at the Community College

by the End of Winter Term, 1976

Degree	Credit Group (N=191) N	Credit Group (N=191) %	Non-Credit Group (N=159) N	Non-Credit Group (N=159) %
AA Degree	90	47.12	66	41.51
AS Degree	19	9.95	22	13.84
Other Degree	4	2.09	0	0.0
Planned Certificate	0	0.0	0	0.0
Total Graduated	113	59.16	88	55.35

Note. Comparison was made between total graduated using chi-square which yielded a $p > .05$.

The students in the Non-Credit Group wrote the CLEP examinations after September 1972. A few students in the Non-Credit Group wrote the CLEP examination as late as June of 1973 and began their freshman year at Miami-Dade Community College in September. However, all students in the Non-Credit Group had the opportunity to attend Miami-Dade a minimum of three full years before the count of graduates was taken in May 1976. As of that time, there were nine students from the Credit Group (5%) and 14

students from the Non-Credit Group (9%) enrolled at Miami-Dade Community College. The percentage of graduates from each group is not significantly different.

The third dependent variable under study was an assessment of the time enrolled at Miami-Dade as measured by the number of months between enrollment and graduation. Official college records indicate that the graduates from the Credit Group were enrolled for an average of 27 months, while the graduates from the Non-Credit Group were enrolled for 34 months. Recalling that the basis of determining rate of progress was on the assumption of four months for each major term and two months for each short term, the Credit Group graduated on the average of nearly two full terms ahead of the Non-Credit Group.

State University System Performance. The primary variables and operational definitions used to evaluate the outcomes were the same as those used for Design I, i.e., entrance into the State University System, academic achievement, graduation, and rate of progress.

Table 13 summarizes the enrollment of Design II students in the State University System. A chi-square analysis of enrollment in the State University System by Design II students did not reveal significant differences between the groups.

Table 13

Enrollment Within the State University System

by Design II Students

University	Credit Group	Non-Credit Group	Total
Florida A & M University	0	0	0
Florida Atlantic University	13	7	20
Florida International University	44	48	92
Florida State University	11	11	22
Florida Technological University	1	0	1
University of Florida	9	11	20
University of North Florida	0	0	0
University of South Florida	6	4	10
University of West Florida	0	0	0
Total	84	81	165

Note. Comparison of total enrollment was made by using chi-square which yielded a $p > .05$.

Tables 14 and 15 summarize the progress of Design II students who entered the State University System from Miami-Dade with respect to completion of the Bachelor's degree. Table 14 follows community college graduates, while Table 15 follows all Design II students regardless of whether they received a degree from Miami-Dade. A chi-square analysis revealed that none of the proportional enrollment patterns were significantly different in either table.

Table 14

Progression of Design II Community College Graduates

	Number of Students in Sample	Received Associate's Degree	Community College Graduates Who Enrolled in SUS	Community College Graduates Who Received Bachelor's Degrees in SUS
Credit Group	191	113	60	32
Non-Credit Group	159	88	59	27

Note. Each of the 3 comparisons was made against the original samples using chi-square analysis which yielded a $p > .05$ in each case.

Table 15

Progression of Design II Students

(Community College Graduates and Non-Graduates)

	Students in Sample	Enrolled in SUS	Received Bachelor's Degrees in SUS
Credit Group	191	84	50
Non-Credit Group	159	81	36

Note. Each comparison (enrolled in SUS and graduated from SUS) was made against the original samples using chi-square analysis which yielded a $p > .05$ for each.

Twenty-six percent of the Credit Group and 23 percent of the Non-Credit Group graduated from the State University System, using the original sample size in each group as a basis for comparison. When graduates are compared on the basis of those who enrolled in the State University System,

15.1% more of the Credit Group students graduated (59.5% vs. 44.4%). This difference should be viewed with caution since the Credit Group has had approximately one year more in which to earn a Bachelor's degree.

Table 16 summarizes academic performance in the State University System for Design II students.

Table 16

Performance in State University System Courses

	University Graduates		University Non-Graduates	
	Successful Courses	Unsuccessful Courses	Successful Courses	Unsuccessful Courses
	M	M	M	M
Credit Group	20.8	2.8	6.3	3.6
Non-Credit Group	22.5	1.6	8.2	3.2

Note. Comparisons between all 4 means were made using a t-test which yielded a $p > .05$ for each.

For those who graduated from the State University System, the Credit students had a mean of 1.7 fewer successful courses, but this was not a statistically significant difference.

CONCLUSIONS

Both Design I and Design II of the study yielded results from which specific conclusions may be drawn. Before these conclusions are presented, it is important to note that in Design I, even though both the CLEP Group and the Non-CLEP Group were matched on the basis of their Florida Twelfth Grade Test Aptitude scores, subsequent analyses of the data show that the two groups were not matched on other relevant variables. To the extent that the conclusions drawn from the data in Design I are dependent upon the CLEP and Non-CLEP Groups being closely matched, a certain degree of caution should be exercised in basing decisions on these conclusions.

1. The data from Design I indicate that students in the CLEP Group

received a higher grade point average than students in the Non-CLEP Group in their community college work. Partly, this may be a result of the CLEP Group students having higher initial academic potential as measured by the Florida Twelfth Grade Test subject tests, despite the fact that they were matched with the Non-CLEP Group on the Aptitude section of the Florida Twelfth Grade Test. The students in the CLEP Group were clearly shown not to have any disadvantage when compared with the Non-CLEP Group on this dependent variable. It may be concluded that the awarding of credit to students who scored at the 50th percentile or above does not affect their later academic performance in the community college in a negative manner.

2. Analysis of academic performance in the State University System, as measured by mean number of successful/unsuccessful courses completed, indicates that the performance of the CLEP Group from Design I was not significantly different from the Non-CLEP Group. This finding lends support to the conclusion that as community college students having CLEP credit matriculate into the State University System, the awarding of such credit does not appear to impair their successful completion of courses at the university level when compared with students who are not awarded CLEP credit.

3. The CLEP students from Design I graduated at a higher rate from the community colleges than did the Non-CLEP students, and more of the CLEP students received a Bachelor's degree within the five-year period than did the Non-CLEP students awarded credit at or above the 50th percentile. It may be safely concluded that the awarding of CLEP credit at the stated level does not impair the progress of students toward earning a Bachelor's degree in the State University System.

4. The CLEP students from Design I who graduated from the community college earned their degrees at a pace significantly faster than the Non-CLEP graduates, and thus were able to graduate earlier with a Bachelor's degree. This finding lends support to the conclusion that the awarding of CLEP credit at or above the 50th percentile leads to an acceleration in academic progress which accomplishes, in part, the intent of the legislature without impairing academic performance at the under-graduate level.

5. Although moderate relationships have been found between CLEP scores and Florida Twelfth Grade Test scores,[10] the data in the present study do not provide sufficient information which would justify drawing a specific conclusion concerning the validity of passing scores. However, if applied in the future, the data from Design II would tend to indicate that a cut-off score set between the 25th and 49th percentile may likely result in some lowering of the overall grade point average for students receiving credit at those levels.

6. The Design II data indicate that students in the Non-Credit Group received significantly higher grade point averages than the Credit Group. It can be concluded that the awarding of CLEP credit at the 25th percentile may be related to lower grade point averages for the Credit Group.

7. Although Design II students from both groups graduated from the Community College in the same proportions, students in the Credit Group graduated, on the average, some seven months faster than those in the Non-Credit Group. It may be concluded that even though awarding credit at the 25th percentile appears to be related to lower grade point averages,

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[10] S. Legg, "Final Report: Three-year Study of CLEP at the University of Florida." Unpublished manuscript, University of Florida, 1976.

it does not deter the student from receiving an Associate's degree and, in fact, permits the student to graduate, on the average, seven months earlier.

8. There was no significant difference between the Credit and Non-Credit Group's proportion enrolling in the State University System for Design II. A slightly higher proportion of the Credit Group had earned a Bachelor's degree by June 1977, a difference which should not be viewed as significant since the Non-Credit Group has had at least a year less of college enrollment. The conclusion can be drawn that awarding of CLEP credit in the 25th to 49th percentile range on college sophomore norms is not associated with lower enrollment or graduation from the State University System.

DISCUSSION*

The use of multiple choice examinations developed and administered by extra-college agencies to assess learning and award credit is and will remain a controversial issue. And well it should, especially when faculty and administrators of colleges and universities often have little voice in the matter as is the case in the State of Florida where statute compels. Given statutory requirements and the inclinations of those within the academic community who favor the concept of credit by examination, there would appear an obligation to assess as carefully as is reasonable to do the educational impact receipt of such credit has upon our taxpaying consistency who happen to attend public colleges and universities. Assessment may take many forms; philosophical, financial, educational, and may take many avenues to arrive at conclusions, one of

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*The views expressed in this section are my own and do not necessarily represent the views of the Task Force or of the supporting agencies.

which is through empirical research studies.

No evaluative research study achieves those ideals of theory, design, and implementation perfection toward which academics strive. This study was no exception. Flaws occurred which constrain generalizability. The most serious theoretical flaws are found in the issues related to society's apparent need to "certify" learning (cf. Yamamoto, K., 1975), an assumption that grade point average, graduation and acceleration are the critical variables to consider, an assumption that general education learning can be summarily assessed (cf. Apstein), and an assumption that conditions of the future will remain relatively constant (which of course they will not; even the nature of the General Examination is to change in September 1978).

Serious design flaws are reflected in that the groups of Design I students differed significantly on sub-tests of the Florida Twelfth Grade Test and in the fact that the selection of the stratified sample of community colleges was based on intuition and the voluntary cooperation of those selected. Implementation flaws are reflected in the differences in length of time to graduate from the State University System for Design II students and in limiting the follow-up of upper-division work only the State University System.

Yet decisions must be made. Should students be granted credit through examination without having necessarily having had classroom experience; if so, are they placed at a competitive disadvantage by their pursuit of the higher learning through the vehicle chosen by a college or a state to award credit? Given a world of limited resources, what is it worth to save the State of Florida several million dollars a year in higher education expenditures which might theoretically be expended to relieve the plight of the

mentally retarded? (Or any other worthy endeavor.)

As an aid in making immediate decisions in an imperfect world, the findings from this imperfect study do offer guidance. The guidance suggests that with the current state of amorphous objectives to be achieved in general education (perhaps in higher education) such measures as are traditionally offered up; grade point average, graduation, and acceleration are all obtained in a reasonably equitable manner by students in Florida awarded CLEP credit at or above the 50th percentile on 1963 college sophomore norms. An interesting (but impractical) research question related to this matter is: suppose that one were to arbitrarily award instant sophomore status to a random selection of entering freshman; would those skipping the freshman year show at a disadvantage on these variables? That we cannot provide a resounding "yes" answer to this hypothetical question redounds poorly to the higher education community.

It may be that one of the key implications of this study is the need to more clearly specify not only outcome measures in higher education but what higher education expects the relationship to be between attainment in general education and future course work. If CLEP is indeed a "great give away" (Stecher), is it bad (bad is clearly the connotation) because it adversely affects students (if so, how) or causes a need for fewer teachers, or is it bad <u>a priori</u>, or because not causing one to "work as hard" is a violation of our puritan ethic? Or is it bad because students may be awarded college credit for knowledge which is putatively at a high school level? If their knowledge is only high school, shouldn't they show at a disadvantage later? How is it that students who purportedly do not know how to write finish a Bachelor's degree - is writing not required beyond a freshman composition course?

The General Examinations of the CLEP program have come in for criticism as noted earlier in this paper, yet the few empirical studies which deal with academic success of students who write the CLEP report favorable findings.[11] In addition to success on academic measures, there is no doubt that these students accelerate and save themselves and the taxpayers considerable funds. A fundamental issue is: At what, if any, sacrifice to the students is their progress accelerated and are these dollars saved. The findings reported in this study and in other empirically-based reports indicate that the sacrifices for the self-selected, highly-motivated, and academically-able students are few, using the criteria of success in undergraduate work. This clearly implies that inferences are limited to other students with like characteristics, performing under like circumstances.

RECOMMENDATIONS

The Task Force has structured this report with separate and distinct sections for presenting results, conclusions and recommendations. It is intended that the Recommendations section reflect the collective judgments of the Task Force. These judgments are derived from data gathered for this report, but often go well beyond the specific findings presented in this study. The judgments are also based on our knowledge of other research conducted within Florida and other parts of the country, our personal work and involvement in the CLEP program, and our interactions with faculty,

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[11] J. Losak and T. Lin, "A Comparison of Academic Success: College Credits via General Examination or Course Enrollment," The Journal of Educational Research, 67 (November 1973): 127-130; R. S. Halinski and R. E. Vogel, "Success on the CLEP General Examinations as a Function of ACT Performance," Measurement and Evaluation in Guidance, 10 (1977): 44-47; E. Caldwell, "In-College Effects of Acceleration by Examination," The Journal of College Student Personnel, 18 (1977): 399-402.

administrators, and students with whom we have come in contact over the past few years.

The recommendations of the Task Force are as follows:

1. That credit by examination programs be continued in the State of Florida.
2. That all credit by examination programs which are in use be vigorously examined.
3. That the CLEP program remain voluntary on the part of the student. Students should not be compelled to participate in the program. If a student voluntarily participates in the program and earns scores high enough to acquire credit but decides against receiving credit, there should be no compulsion for the student to have these scores included on the transcript and credit awarded.
4. That if students wish to participate in the CLEP General Examination program, they be required to do so during or prior to the first term of the freshman year.
5. That the Essay Examination, which will be available for the English portion of the General Examinations in September of 1978, be a required component of the CLEP program in the State of Florida for those students who write the English Examination.
6. That the present cut-off score for awarding CLEP credit remain at the 50th percentile, college sophomore level norms, until June 1980 so as to provide time to evaluate the new battery which is to be introduced in September 1978.
7. That the feasibility of establishing differential passing score

levels for each General Examination can be explored. For example, award of three quarter hours credit for a minimal acceptable score, six quarter hours for a medium level and nine quarter hours for yet a higher level.

8. That the faculty in community colleges and universities, who teach in the discipline represented by the various General Examinations, be asked to examine content validity and recommend appropriate passing scores for the examinations due to be implemented in September 1978. (It is assumed that this and other reviews of the new CLEP battery can be accomplished by June 1980.)
9. That credit by examination programs contain more substantial components of competency-based examinations than is currently the case.
10. That the College Entrance Examination Board and Educational Testing Service provide more specific psychometric detail in the User's Manual.[12]
11. That the Department of Education undertake a thorough review of the present legislative mandate which requires the administration of the CLEP, or equivalent programs, from the standpoint of long-range educational and financial implications.

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[12]Oscar R. Buros, "Fifty Years in Testing: Some Reminiscences, Criticisms and Suggestions," Educational Researcher, 6 (1977): 9-15.

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